

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An optical waveguide provided with a refractive-index profile for transmitting light, the optical waveguide comprising:

(a) a main medium; and

(b) a multitude of submedia that:

(b1) have a refractive index smaller than that of the main medium; and (b2) are distributed in the main medium such that the submedia form minute regions each of which exists locally in the cross section perpendicular to the direction of the light travelling in the optical waveguide without extending along the axis of the optical waveguide;

the refractive-index profile being formed based on at least one member selected from the group consisting of:

~~(e) — the refractive index profile of the main medium itself;~~

(c) ~~(d)~~ the numerical distribution density of the minute regions; and

(d) ~~(e)~~ the individual size of the minute regions; and

~~(f) — the numerical distribution density and individual size of the minute regions~~

wherein the submedia are made of gas.

2. (Original) An optical waveguide as defined by claim 1, wherein the main medium is made of one material selected from the group consisting of glass and synthetic resin.

3. (Cancelled)

4. (Original) An optical waveguide as defined by claim 1, wherein each of the minute regions has a size of at most $1/10$ the wavelength of the light travelling in the optical waveguide.

5. (Original) An optical waveguide as defined by claim 1, the optical waveguide being an optical fiber.

6. (Currently Amended) A method of producing an optical waveguide provided with a refractive-index profile for transmitting light, the method comprising:

(a) a first step for producing an intermediate, the intermediate comprising:

(a1) a main medium; and

(a2) a multitude of submedia that:

(a2a) are made of gas and have a refractive index smaller than that of the main medium; and

(a2b) are distributed in the main medium such that the submedia form minute regions each of which exists locally in the cross section perpendicular to the direction of the light travelling in the optical waveguide without extending along the axis of the optical waveguide; and

(b) a second step for providing the intermediate with the refractive-index profile for transmitting light the refractive-index profile being formed based on at least one of:

(c) the numerical distribution density of the minute regions; and

(d) the individual size of the minute regions.